

Epidemiological measures against gonorrhoea

Experience in Greenland

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The fight against venereal diseases has been a heavy responsibility for the health authorities in Greenland during the last decades. The extent of the problem has increased at a rate which is in suggestive temporal relation with the more intensive Danish efforts to improve hygienic, social, and educational standards in Greenland.

Until recently, the problem of sexually transmitted disease has centred in the frequent occurrence of gonorrhoeal infections. Fig. 1 shows the annual number of notified cases of gonorrhoea in Greenland from 1947 to 1970. The number of cases in 1971 (190 per 1,000 population) was fifty times as high as in the rest of Denmark. Greenland must therefore be considered as an area where epidemiological measures against gonorrhoea might be applied (WHO, 1965).

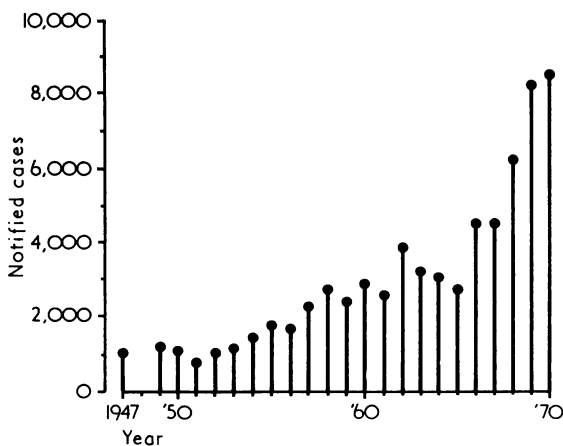


FIG. 1 Number of notified cases of gonorrhoea in Greenland, 1947 to 1970. In 1971 the total rose to 9,300 cases

Selective mass treatments

In 1964 Lomholt and Berg carried out an analysis of the gonorrhoea problem in South Greenland, which resulted in a proposal for an epidemiological campaign (Lomholt and Berg, 1966). The principle of the plan was regular repeated compulsory mass treatment for gonorrhoea of every person in those sections of the population that were particularly exposed to the infection, *i.e.* persons who had been treated for gonorrhoea during the last 6 months and, in the settlements, all remaining unmarried persons between 15 and 30 years of age.

In South Greenland the anti-gonorrhoea campaign was carried out by a trained team who supplemented mass treatment with venereological examination before treatment and tracing of contacts. A mobile gonococcus laboratory was established so as to achieve a reliable diagnosis as quickly as possible. In the rest of the country it was only possible to give epidemiological treatment to those who were particularly at risk, *i.e.* no contact tracing was done.

These programmes were carried out with various modifications from 1965 to the middle of 1968 in the southern area, and in the rest of Greenland only from the spring of 1965 to the spring of 1966. Sodium benzyl penicillin 5 m.u. with lignocaine intramuscularly and probenecid 1g. orally was used as the standard treatment (Olsen and Lomholt, 1969).

The first results of the combined examination and treatment project in South Greenland were extremely encouraging (Olsen, 1965). Fig. 2 shows the result of the first programme in May, 1965; 108 cases of gonorrhoea were diagnosed in the area, which means that over 10 per cent. of those examined had the disease. At the second programme 6 months later (Fig. 3), only five cases were found, *i.e.* less than 1 per cent. of those examined. The 1965 campaign in the rest of Greenland was almost without effect. This is probably due to the fact that no tracing of contacts was carried out so that only a few of the circulating infected carriers were treated. Communication between the districts was probably also faulty.

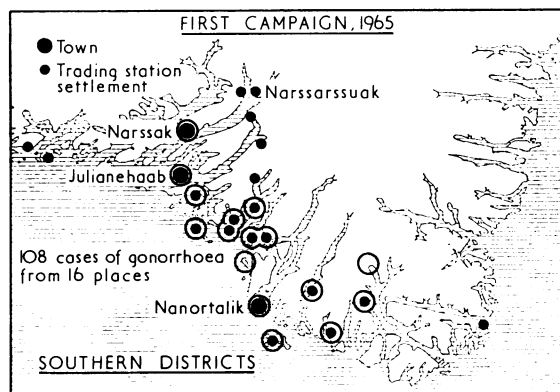


FIG. 2 Results from the first selective mass treatment campaign in Southern Greenland in 1965

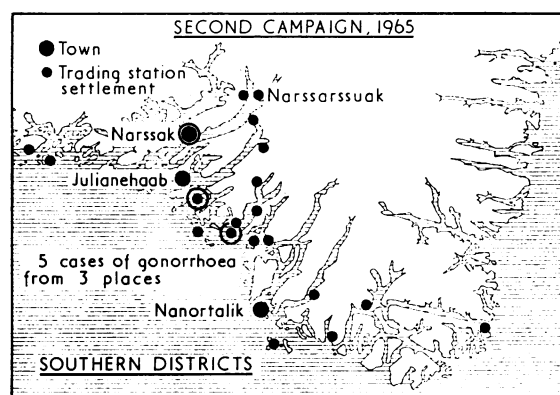


FIG. 3 Results from the second selective mass treatment campaign in Southern Greenland in 1965

In consequence of the differences in the results obtained, the South Greenland team was asked to carry out an examination and treatment programme along the whole of the west coast of Greenland in 1966. This extended over 5 months and included examination for gonorrhoea and treatment of the particularly exposed persons in all the settlements and towns from Kap Farvel to 200 km. north of Upernavik (73° lat. N). This type of project proved to be too comprehensive, with too many failures in the tracing of contacts, and could not therefore be recommended for subsequent use. The experience from 1965 and 1966 showed that it was no longer justifiable to continue the mass epidemiological treatment of exposed groups, since the results obtained could not justify the increasing risk of serious allergic reactions.

Repeated group examinations

It was agreed that the South Greenland team should continue with group examinations in the southern districts, and that efforts should be made to form two similar teams to undertake corresponding programmes in the rest of the west coast area. However, this part of the scheme could not be realized, and only the South Greenland team could test the effect of the mass examinations. During the continued programme in South Greenland, treatment was given only in cases in which gonorrhoea was diagnosed or exposure to risk of infection was proved. Five such projects were carried out between November, 1966, and May, 1968. Examination was compulsory for persons who had been treated for gonorrhoea during the previous 6 months. At the settlements, the rest of the unmarried 15 to 30-year-olds were urged to allow themselves to be examined, and the majority agreed. During the first programme of this kind, gonorrhoea was diagnosed in 23 per cent. of those examined in the towns and in 17 per cent. of those examined in the settlements. During the subsequent campaigns, the percentage of infected among those examined in the towns was reduced by half, to 10 to 14 per cent. At the subsequent examinations in the settlements, gonorrhoea was diagnosed in only 2 to 5 per cent. of those examined. The better results in the settlements than in the towns are due to the fact that it was easier to restrict the infection in these small communities. In the towns, the promiscuous pool was larger, and there was more likelihood of new infection being introduced from the northern districts.

Influence on incidence

While the effect of the campaigns on the prevalence of gonorrhoea in the area concerned can probably be evaluated with certainty, it is difficult to assess the effect on the overall incidence of the disease. Such an assessment demands knowledge of the size of the particularly exposed groups inside and outside the district before and after the campaigns, in order to compare the size of the groups with the numbers of notified cases of gonorrhoea. If the annual number of notified cases in South Greenland and the rest of the country are plotted in relation to the group of unmarried persons aged 15 years and more in the two areas, a very large variation can be seen in the incidence of gonorrhoea from one year to the next. These variations are due to the fact that slight deviations in the geographical distribution of youth groups can change the areas where the cases of gonorrhoea are diagnosed. These variations could

generally be counterbalanced by working with 4-year periods. Such calculations form the basis of Fig. 4, which shows the number of notified cases of gonorrhoea among unmarried adults in South Greenland and the rest of Greenland in 4-year periods from 1957 to 1971.

It should be noted that the incidence of gonorrhoea in the first two periods was almost twice as high in South Greenland as outside that area, and that the difference was smaller in the last as well as in the third period. Since the campaign against gonorrhoea—except for 1965 to 1968—was the same in the two regions, this variation in incidence must be considered to be a consequence of differences between the two areas in those socio-economic factors which are concerned in the spread of venereal infection.

It appears (Fig. 4) that the incidence of gonorrhoea declined very considerably in South Greenland in the years during which the intensified campaigns were carried out, while in the rest of the country the incidence increased. Without the campaigns, a sustained increase in incidence would have been expected. On that basis, the expected incidence in the southern district would have been 41 per cent. higher and in the rest of Greenland 12 per cent. higher in the period from 1965 to the middle of 1968. The decrease in the incidence in South Greenland must be interpreted as a direct consequence of the intensified anti-gonorrhoea programme in the region during that period. At the same time, a steadily increasing transfer of infection *via* the coastal traffic took place from the northern coastal district to South Greenland, and less frequently from South Greenland to the rest of the country. This had an adverse

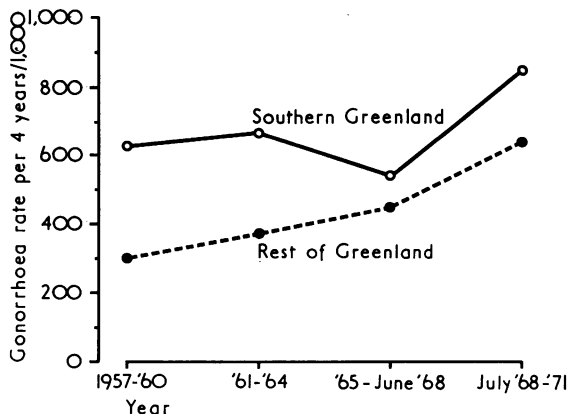


FIG. 4 Number of notified cases of gonorrhoea per 1,000 unmarried persons aged 15 years and above in Southern Greenland and the rest of Greenland, 1957 to 1971

effect on the results of the programme in the southern districts, which could have been reduced if the campaigns had been carried out as planned with three teams working on the west coast.

Judged on the basis of the number of notified cases of gonorrhoea, the effect of the intensified programmes seemed to fade 3 to 6 months after their conclusion in June, 1968. However, there is no record of how long it took before the prevalence of gonorrhoea in the towns and settlements had reached the same level as before the campaigns.

Sensitivity of the gonococcus

Intensified efforts against the spread of gonorrhoea in Greenland appeared to have an unexpected but favourable influence on the sensitivity pattern of the gonococcus in South Greenland. This observation has been discussed in two previous papers (Olsen 1973a, b).

Summary

Our experience with the effect of selective mass treatment and examination for gonorrhoeal infection is scanty (WHO, 1965). However, in areas with a particularly high frequency of gonorrhoeal infections, such epidemiological measures may be appropriate. Selective mass treatment for gonorrhoea in groups at high risk of infection has been employed in Greenland. The effect was satisfactory only in the region where it was supplemented by venereological examination and the tracing of contacts, and where the programmes were carried out by a specially trained team. Repeated mass examinations resulted in a 50 per cent. reduction in the prevalence of gonorrhoea among those particularly exposed to risk in the towns and a 70 to 80 per cent. reduction among young people in the settlements. Without the programmes, the incidence rate probably would have been 41 per cent. higher.

If epidemiological campaigns against gonorrhoea are to achieve results of a more lasting character in a country such as Greenland, they must be coordinated in the whole of the geographical area. Contrary to previous experience (WHO, 1965), the sensitivity of the gonococcus increased in the course of the campaigns in Greenland.

References

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**Mesures épidémiologiques contre la gonococcie.
 Expérience du Groënland**

SOMMAIRE

Notre expérience sur l'effet du traitement de masse sélectif et sur les examens de masse pour la gonococcie (OMS, 1965) est limitée, cependant, dans les régions où la gonococcie a une fréquence particulièrement élevée, de telles mesures épidémiologiques peuvent être appropriées. Le traitement de masse sélectif de la gonococcie pour les groupes courant un risque élevé d'infection a été

employé au Groënland. L'efficacité fut satisfaisante seulement dans la région où ce traitement était complété par l'examen vénéréologique et la recherche des contacts et où les programmes furent assurés par une équipe spécialement entraînée. Les examens de masse répétés réduirent de cinquante pour cent la prévalence de la gonococcie chez ceux qui étaient particulièrement exposés dans les villes et de 70 à 80 pour cent chez les jeunes dans les 'settlements'. Si ces programmes n'avaient pas été mis en oeuvre, le taux d'incidence aurait été de 41 pour cent plus élevé. Pour que des campagnes épidémiologiques contre la gonococcie puissent parvenir à des résultats de caractère plus durable dans un pays tel que le Groënland, elles doivent être coordonnées avec celles de l'ensemble de la zone géographique considérée. Contrairement à l'expérience précédente (OMS, 1965), la sensibilité du gonocoque a augmenté au cours des campagnes au Groënland.